

CLAIMS

1 - A smart safety device for at least one piece of electric equipment on board a vehicle including a network of electric circuits wherein pieces of electric equipment are mounted, at least one of which forms a power source, characterized in that it appears as a box (3) including mounting means on at least one electric circuit, the box including:

- at least one sensor (4) for measuring a current flowing on an electric circuit of the network,
- a computing and control unit (6) including:
 - means (7) for acquiring current measurements taken by the current sensor (4),
 - computing means (11) which, depending on current measurements and on determined operating criteria of the electric network, determine the normal or abnormal operating state of at least one piece of electric equipment,
- and at least one disconnecting system (15) controlled by the computing and control unit (6) so as to disconnect at least the electric circuit including a piece of electric equipment which is considered to be in an abnormal operating state by said unit.

2 - The smart safety device according to claim 1, characterized in that the computing and control unit (6) includes means (8, 9) for acquiring measurements of at least one operating parameter of the power source, such as the voltage delivered by the power source and/or the temperature of the power source.

3 - The smart safety device according to claim 1, characterized in that the disconnecting system (15) is mounted in the circuit of a piece of electric equipment forming a power source, such as an alternator, a battery or a voltage converter.

4 - The smart safety device according to claim 1, characterized in that the computing and control unit (6) includes means (20) for communicating with a centralized system (21) for managing a power source.

5 - The smart safety device according to claim 4, characterized in that the computing means (11) determine the operating conditions of the pieces of electric equipment (1, 1₂) according to the operating state signals of the vehicle transmitted by the centralized management system (21).

6 - The smart safety device according to claim 1, characterized in that the computing means (11) determine the operating conditions of the pieces of electric equipment (1, 1₂), according to determined operating criteria for the battery such as predetermined current values corresponding to a short circuit.

5 7 - The smart safety device according to claim 1, characterized in that the current measurement sensor (4) is of the Hall effect type.

8 - The smart safety device according to claim 1, 3 or 7, characterized in that the current measurement sensor (4) is mounted in the circuit of a piece of electric equipment (1) forming a power source such as an alternator, a battery or a voltage
10 converter.

9 - The smart safety device according to claim 1, characterized in that the current measurement sensor (4) is mounted in the circuit (2₂) of pieces of electric equipment (1₂) such as on-board computers or lighting sources, the disconnecting system (15) being mounted in such an electric circuit (2₂).

15 10 - The smart safety device according to claim 1, characterized in that the box (3) includes means for mounting power source (1) on an electric circuit and integrated means for recovering power delivered by the source in order to power different electric components of the box.

11 - The smart safety device according to claim 1, characterized in that the
20 disconnecting system (15) is mounted in the electric network outside at least one safety electric circuit (1₁).

12 - The smart safety device according to claim 1 or 11, characterized in that the disconnecting system (15) is an actuator of the pyrotechnical type.